Barriers and incentives to territory-based innovation processes: from technology to interaction among actors

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ABSTRACT

The context of territory-based innovation processes includes both barriers and incentives. This chapter presents and discusses the research and findings of a study conducted with two sets of five community-led initiatives, one composed of small-sized initiatives and another composed of larger-sized initiatives, with a view to identify barriers and incentives to territory-based innovation. Following a mixed-coding approach, data was analysed to identify barriers and incentives to territory-based innovation prompted by the use of digital tools, by the interaction among actors, and by contextual factors. Results from both small- and larger-sized initiatives show significant technology weariness, still initiatives praise the effectiveness of some digital tools, namely social media, in reaching their audience. Both types of initiatives, especially small-sized ones, evidence disappointment towards cultural traits and bureaucracy, being these factors experienced as a disheartening barrier. Yet, initiatives also commend the know-how and flexibility of specific actors, e.g. civil parishes, with whom initiatives interact with closely when performing their day-to-day activities.

Keywords: Digital Technologies, Community-Led Initiatives, Territory-Based Innovation

INTRODUCTION

The Centro region of Portugal covers an area of 28,199 km2, is the second largest in Portugal and includes 100 municipalities. With a population of 2,327,755 inhabitants its distribution over the territory is not homogeneous, and sparsely populated territories inlands contrast with large population clusters, typically located in coastal lands (CCDRC, 2014). Rural areas are also characterized by a social demographic trend where there is a decrease of the younger population and an increase in the elderly population (Gomes, 2016). Other studies (Etuk, 2013; Reis, 2012) report on similar circumstances in which rural communities are increasingly depopulated and more socially isolated as young people move to urban areas looking for better training and employment opportunities.

Demographic dynamics recorded in the Centro region in recent decades show that two thirds of that territory struggles with depopulation. Distant and remote, these rural communities experience social disadvantages and decline in economic activities. While digital technologies could benefit these remote rural communities by linking people, businesses and services, rural isolation is amplified by the existent technological landscape, which holds problems not only in terms of broadband access but also in terms of equipment and the willingness or ability of residents to adopt them (Antunes, 2017; Ferreras, 2010; Silva, 2018, Tymoshchuk, 2019).

Addressing the regressive dynamics of these territories requires strategies that mobilize the endogenous potential of these territories, by prompting citizens initiative and entrepreneurship, and encouraging

creativity and innovation of local communities (Etuk, 2013; Henriques, 2013; Ferreira, 2016). There are however both encouraging and limiting factors in this process of territory–based innovation. This chapter seeks to develop a better understanding of how community-led initiatives, groups of citizens who together act to better their territories, are operating to identify incentives and barriers to their processes. In particular, the study aims to identify negative (– barriers –) and positive (– incentives –) experiences triggered by the use of digital tools, the interaction among actors, and the overall context among community-led territorial innovation initiatives and their practices and activities.

In doing so, this research reports on the results and findings of two focus groups conducted with small- and larger-sized community-led territorial innovation initiatives (CTII) to uncover their types of experiences. After situating the work in the literature and presenting its background and context, this chapter presents the methodology followed to carry out the research. Afterwards the research and findings are presented and discussed. The chapter finishes by eliciting its conclusions that indicate technology weariness and bureaucracy as obstacles to the normal development of initiatives' activities and the effectiveness of specific digital tools and the know-how of some actors as stimulating factors.

BACKGROUND

Communities and networks in the process of territory-based innovation

The growth of community-based initiatives is one of the key factors in the process of developing a territory, enabling it to develop more appropriate strategies and solutions to eliminate barriers to its growth. Involving community-based initiatives in territorial development can provide local communities with effective opportunities to participate in decision-making in their region's social, economic, cultural and political life (Malek & Costa, 2014; Zeng et al., 2019).

From a territorial innovation standpoint, the term "community-based initiative" is not intended to describe a specific institutional framework (Seyfang & Smith, 2007), but rather the organization of actions in which entities, communities, and individuals are motivated to cooperate, in search of mutually beneficial solutions. Thus, community-based initiatives aim to promote the sustainable development of the territory, generating new bottom-up solutions adjusted to the local situation and the interests and values of the communities involved (Amorim, 2015).

The development of networks that relate to the territory and value community knowledge is of great importance to the process of territorial innovation, because of its ability to suggest proposals that "do not distance or detach themselves from local particularities" (Sampaio et al., 2008, p. 245). According to Zambanini et al. (2014), a network consists of a set of relationships between members, which are established through their interactions and needs. Involving community-based initiatives in these networks benefits the mobilization of regional endogenous potential and its resources, as well as human capital and innovation capacities, to promote the development of local economies.

Incentives and barriers in the innovation process

As various studies have shown (Aref, 2011; McGinty, 2003; Pikkemaat, Peters, & Chan, 2018), the development and competitive advantage of a territory cannot be reduced to the economic aspect alone but must also incorporate other aspects of equal or even greater importance. These include cultural enrichment, the collaboration between public and private entities, the strengthening of the social and associative fabric, the improvement of the social conditions of the community, the encouragement of sustainable economic and social development, the creation of new jobs, and the training and capacity building of local development agents. According to Mulgan (2006), in this way, social innovation can be promoted. Social innovation relates to innovative activities and services that aim at meeting a social need. Moreover, social innovation usually arises from individual participant actors with a particular skill set, which cannot be transferred through top-down approaches, but rather the opposite, regardless of its intended external stimulation (Mulgan, 2006).

Understanding factors that encourage collaboration between the various territorial actors, as well as identifying barriers in this process, can facilitate the creation of strategies that promote the growth of networks that stimulate territorial development.

Several international studies show that community initiatives face several barriers that hinder their progress, such as: lack of community participation, knowledge and awareness, power imbalances between local communities and government, and lack of human resources (McGinty, 2003); bureaucratic procedures, residents' attitude towards innovation, and unwillingness to cooperate (Pikkemaat, Peters, & Chan, 2018); inefficient resource mobilization, lack of capable leadership, and lack of funding (Ebbesen, Heath, Naylor and Anderson, 2004).

In this context, the implementation of diversified incentives, which facilitate the development of community initiatives and the processes of collaboration between the different local actors, is essential through: i) the promotion of political and social relations that favour local development, providing the incorporation of inclusive social practices; ii) the creation of synergistic capital, so that local cooperation networks (formal or informal), carry out projects with common objectives, tuned to drive innovation in the region; iii) the implementation of local governance, which ensures the participation of the local community in the information and decision processes; iv) improving human resources training (Pikkemaat, Peters, & Chan, 2018).

The role of technology in developing territories

Digital media and mediation/hypermediation can increase the empowerment of local communities, promoting engagement with the territory and respect for the various nuances of local cultural identity and reinforcing differentiation between territories (Encalada et al., 2017). While digital media are tools society uses to communicate, mediations refer to the process rather than the media itself.

The concept of mediation, proposed by Martin-Barbero (1987), means that mediations are communication strategies that allow human beings to represent themselves and their surroundings, producing and exchanging meaning. Scolari (2008) has complemented the concept of mediation with the one of hypermediation, to address the extended scale and power of mediation when it takes place in digital environments. This author argues that hypermediation is a complex network of production, exchange, and consumption of processes in an environment characterized by countless social actors-agents, digital media, and technological languages.

According to the latest ANACOM Report (2019), at the end of 2018 the number of residential customers with a high-speed connection at home amounted to around 2.5 million, 10.9% more than in the previous year. However, the numbers for the Centro Region of Portugal are below the country average. While on average 62% of the families in Portugal has a high-speed connection at home, in the Centro region this percentage drops to 47%, 15% lower than the average, and almost half of the percentage in Lisbon (83%), which has the highest penetration rate in the country. Only Alentejo has a lower percentage (40%) (ANACOM, 2019).

According to the European Commission (2017), in Portugal, the percentage of individuals who have never used the Internet has been decreasing, but it is still a high (22%) when compared to the European Union (EU) average (13%).

In addition to the geographical issue, the non-use of Internet services in Portugal is also associated with age, educational level and work status. According to the ANACOM report (2017), the proportion of residents in Portugal with a lower level of education or in retirement age who have never used the Internet is 56% and 69%, respectively. According to the EU report (2017), the most frequently mentioned reason why households do not have an Internet connection in Portugal is "digital literacy" (73%) and "lack of interest" (46%). When compared with other EU countries, Portugal shows the second highest percentage in the item "digital literacy". Reasons such as "high equipment costs" (35%) and "high access costs" (33%) were also frequently mentioned.

In this context, providing technology and connectivity alone is not enough to promote digital inclusion. Adoption and effective use are needed if digital connectivity is to have an impact. To achieve this, it is necessary to promote training on digital technologies that fit the daily activities of local communities and enable people to cope with rapid digital change (Bougie, 2002; Hage et al., 2013; Almeida, 2016).

The data from these reports allow us to conclude that community initiatives in rural areas still suffer economic and social disadvantages due its remoteness. Digital technologies have the potential to benefit these communities by linking people, businesses and services. However, rural isolation is amplified by the current technological landscape. Rural community initiatives face problems both in terms of broadband access and the willingness or ability of residents to adopt them. According to Bonomi et al. (2017), there are almost no studies on the role of technology in enabling community initiatives. These authors indicate that academics need to adopt new methodologies to adequately analyse the role of digital technologies in the processes of territorial innovation and social entrepreneurship.

In times of increasing global competition, the use of digital technologies is becoming increasingly important for the development of a region. Digital technologies can offer community-based initiatives several advantages: enabling their members to improve their practice through continuous knowledge creation (Wenger, 1998), facilitating innovation as a result of knowledge exchange, experiences and ideas, as well as through the debate on them (Saint-Onge & Wallace, 2012; Snyder & Wenger, 2010), allowing for new solutions to local problem solving (Fahey, Vasconcelos, & Ellis, 2007).

In this context, connectivity and digital inclusion are essential to ensure resilience and competitiveness of rural regions. Several studies (Brown & Nylander 2009; Marré & Weber 2010) find that digital telecommunications infrastructures and applications are not yet available in many rural areas, which are still "underserved or underserved" and therefore disadvantaged. This digital divide constrains the capacity for economic, social and cultural growth of local communities, raising many questions about the economic viability and long-term sustainability of rural communities, as well as the resilience of their habitants.

METHODOLOGY

This study aimed to uncover barriers and incentives experiences by community-led territorial innovation initiatives (CTII) while conducting their activities, namely those perceived in the use of digital tools and interaction among actors. To accomplish this goal a research question was posed: What types of experiences are triggered by the use of digital tools and the interaction among actors in the context of the activities of community-led territorial innovation initiatives?

In addressing this research question, the research reported in this chapter carried out two focus groups (FG), one with small-sized CTII (FG1), operating within the municipality of Aveiro, Portugal, and another with larger-sized CTII (FG2) with activities spread district- or nation-wide. These two types of initiatives were considered different enough, not only in terms of their area of activity but also in terms of the size of their network of actors, to justify hearing them both with regards to their experiences and perceptions in conducting their activities.

The FGs were identical with regards to the way they have been organised and were facilitated by one researcher, supported by two others. After welcoming the participants and gathering their informed consent, the facilitator explained the goal of the FG and provided participants with context on the project within which the focus group was being conducted: [hidden for purposes of blind review] [1]. The facilitator then allowed time for participants to clarify any doubts and, once everything was clear, the floor was given to participants. The FG was organized in two parts: one focused on the digital solutions CTII currently used and one other on the characteristics and features a possible future digital solution should have, in order to further support them in their activity.

To conduct the discussion, the facilitator had a topic guide, with the following themes: use of digital media and its respective use within members of the initiative and with external agents; perceived obstacles and facilitators in the process, and appeal of a new platform and its desirable features and characteristics.

The focus groups took place at the Department of Communication and Art, within the University of Aveiro, Portugal, on October 19th 2018, with small-sized CTII, and on January 17th 2019 with larger-sized CTII. Each focus group involved six participants from five different initiatives, who were selected on an availability basis. Each FG lasted about 100 minutes, was video and audio recorded and later transcribed verbatim. Once transcribed, the data was imported to WebQDA [2], where it was coded and analysed. Microsoft Excel further supported the data analysis process. The coding process followed a mixed coding approach (Creswell & Clark, 2010), where an initial set of categories [3] was defined, which then changed and evolved according to the codes and categories that deductively emerged during the data analysis. Two researchers simultaneously performed the coding and, once there was a first version of the coding tree, it was discussed for improvement with five other researchers of the project.

RESULTS

The results of this research are organized according to the experiences and perceptions CTIIs conveyed through each of the focus groups, and as those experiences and perceptions were prompted by technology use, by the interaction with other actors, and/or by contextual factors. Experiences are then grouped in positive and negative experiences. These are the dimensions considered in the data analysis. An overview of the results can be found in the Appendix: Table I.

Focus group 1 (small-sized CTII)

The analysis of the experiences of participants together with the context – external or internal to the initiative – shows that participants recurrently report experiences that relate to communication with actors external to the initiative rather than internal ones. In addition, participants' comments recurrently refer to specific actors - e.g. municipalities and civil parishes - with whom initiatives need to articulate with to carry out their activities. This demonstrates the relevance that the interaction with these actors holds. In this context, it is noticeable that the interaction with civil parishes is characterized by a closer proximity – propinquity [4]– that lends swiftness to the processes. Another category of actors who are recurrently mentioned includes regulatory organizations, such as the National Tourism Registration or the Economic and Food Safety Authority.

Prompted by technology

When analysing the data from the focus group conducted with small-sized CTII, data shows technology to be the largest source of frustration of the participants. The aspects that are in the origin of participants' frustrations are: the excess of unsorted information, the overabundance of digital tools, and the complexity of those tools. The excess of unsorted information derives from the large number of messages participants have to manage, across a large number of tools/services, which includes from WhatsApp to Facebook Messenger, SMS, and Email. This excess of, often unsorted, information is also highlighted in relation to the contents displayed on tools such as websites, Facebook, and virtual agendas. The overabundance of digital tools is expressed not only in relation to digital messaging services (such as: WhatsApp and Facebook Messenger), but also when referring to productivity tools (such as: Skype and GoToMeeting) and to tools to gather feedback and secure endorsement (e.g. Google maps, Facebook reviews, and TripAdvisor). Another source of frustration pertains to the complexity of digital tools, that participants find challenging to overcome. With regards to this, participants stress that, for example, it is too complex for them to create a website from scratch and to handle tools like Photoshop or MailChimp. As one participants states: "some people say it (referring to MailChimp) is easy, but I still haven't figured out how to configure it".

Participants also report on positive experiences prompted by technology. These relate to: the efficacy in reaching audience, the simplicity of tools, and the fact that some tools, such as direct SMS, are well-liked by audience. Regardless of recent losses in popularity, when looking into the tools that small-sized CTII consider to be effective in reaching audience, Facebook is the tool that these CTII consider the most effective in attaining their goals. According to the perceptions expressed by the participants, Facebook and

personal direct SMS's are tools/services which are well-liked by audience. Participants then praise the simplicity of specific tools they use to accomplish their goals. As examples, participants state how easy it is to produce graphic materials, such as flyers and posters, with Canva and how straightforward it is to integrate widgets (e.g. TripAdvisor) into websites created in tools, such as Weebly, as a participant explains: "I have a very rudimentary site, which I created in Weebly. Wordpress seems… lots of people find it simple, but to me it was a tad complex. In the past, in the context of one other project, I had, I bought a site… And the site was really beautiful, but it wasn't visible… People could search it, but wouldn't find it… And I didn't know how to change it… (…) so I said, I don't want this, I want a site that I can change whenever I please (…). So, I created one in Weebly… though very simple of a site, very basic (…) lots of people have mentioned it is dated... the fact is it shows first on a search engine…".

Prompted by actors

Participants also reported on a large number of negative experiences prompted by interaction with other actors. These results from: technology illiteracy, bureaucracy, out-of-date skills and need for capacity building, cultural traits, lack of professionalism, and resources misuse. Participants' discourse reveals a significant frustration with bureaucracy as well as with technology illiteracy. To this adds the misuse of resources, an undesired outcome that often results from lack of professionalism and cultural traits. A specific example that a number of participants gave relates to regional cultural agendas. According to the participants, not only do municipalities linger on updating the information sent by small-sized CTII, regardless of the number of reminders that might be sent to them, as municipalities are also often delayed in publishing those agendas, to a point that events in the agendas are only disseminated after they have taken place. Examples of bureaucracy and resources misuse such as this one are perceived as a missed opportunity to disseminate and galvanize regional activities. In addition, participants stated that some actors (e.g. staff working within municipalities) are only able to use dated technologies, such as fax. Technology illiteracy and the need for capacity building are very tightly connected, with participants stressing the need for skills development, especially among people with whom they interact, for example in municipalities and regulatory organizations. Regardless of the scarce number of positive aspects highlighted when referring to the interaction with other actors, it is noteworthy that, despite their technology illiteracy, small-sized CTII also underline the know-how of these people, which is both valuable and crucial for initiatives and activities to run their course. As one of the participants explains: "… It is very important to keep that lady in that organization because she has the know how… that lady is really important, because she has the sagacity of all the years she worked there, and knows all the nooks and crannies of the house…". Another interesting example refers to the key role that traditional media may play in supporting initiatives in gaining visibility and credibility among local actors. With regards to this, one participant of the focus group states how a newspaper article and piece on the TV news were pivotal in gaining visibility and, subsequently, getting support by municipality.

Prompted by contextual aspects

Participants also referred to contextual aspects. These aspects were both highlighted as negative or positive. Positive aspects were related to: organized and complete promotional materials and effectiveness. Negative factors related to: the lack of resources and the lack of information about events and activities.

When pointing out the lack of resources, participants referred to the lack of financial resources that small-sized CTII have to deal with on a daily basis. As a result, they develop their own coping strategies, that usually involve resorting to free digital tools, which allow less skilled professionals to still achieve their desired goals. A specific example, which is introduced, reports on the use of Canva to seamlessly develop effective promotion and dissemination materials, as one participant explains: "It's always a struggle to divide time, but, if all projects, events, etc. require a whole lot of preparation, its success, sometimes, it's not only linked to the quality of the event itself, but rather the way in which it was disseminated. It's the visuals… For example, I use a tool, which is really simple, i.e.: Canva, to make pretty personalized covers. Canva is simple. It has got to be simple…".

Small-sized CTII also develop their own ways of sharing information about events and activities. In this case, a phone call to their own personal network is presented as the most efficient way of speeding up collaborations and sharing information.

Participants of this focus group also praise the effectiveness, organization, and completeness of some communication and mediation tools that support them in achieving their goals. Participants refer not only to the effectiveness of some specific tools/services (e.g.: Flyers , Email, website, Facebook, TV, post), as they go as far as discussing the structure, content, and point of delivery of these communication and mediation tools. An example was shared to exemplify such materials: a complete travel guide, listing all events of region, delivered on arrival at the airport. This example is contrasted with loose, random, and incomplete promotional materials handed in tourist fairs and other information points.

Focus group 2 (larger-sized CTII)

When analysing the type of experiences of larger-sized CTII, data shows that participants' comments go towards the communication with both internal and external members to the initiatives. Differently from the small-sized CTII, there is not a typical type of actor that these types of initiatives refer to, more frequently than others.

Prompted by technology

Into what concerns to challenging experiences prompted by technology use, larger-sized CTII express frustration with: too many digital tools, excess of unsorted information, unmet expectations, and impersonal communication. There are also positive aspects that relate to the: efficacy in reaching a specific person and efficiency.

Participants feel overwhelmed by the overabundant number of platforms and digital tools, with which they have to deal with on a daily basis. The fact that information is spread over an almost infinite number of tools, services and platforms (e.g. Email, Facebook, Slack, etc.) materializes in scattered information, which management is extremely demanding on participants, both in terms of time and personal effort. Email, for example, constitutes an extreme case of an excessive amount of unsorted information. Another source of frustration relates to the deceptiveness that digital platforms may hold. Participants used the example of Facebook events to explain that although a given event may display a high number of interested participants on Facebook events, creating the illusion that the event is going to be highly participated, they may get an empty room on the day. This mismatch together with the excessive number of digital tools and unsorted information, leads larger-sized CTII to consider tools, such as Facebook, as inadequate for their needs. To this extends the fact that these CTII strongly value the richness of face-to-face communication, which is something this type of digital tools does not support. According to the participants of this focus group, the human component of face-to-face communication cannot be matched by currently available digital tools. Further to that, this type of CTII consider face-to-face communication is not only the most effective, but also essential to create bonds and share values, participants stress: "Our teams are scattered across a large region, therefore we have people who I don't see for weeks, months, … (…) … Our main issue is not to share information, is to convey culture. That's our main issue. So we need to convey information about… we have to convey the information that is relevant for our culture (…) our effort is more towards cultivating, developing an internal culture, let's say, based on values".

There are however, some tools, which are particularly effective in allowing larger-sized CTII to reach to a specific person, colleague, or acquaintance. Tools such as LinkedIn Messaging and Facebook Messenger, which allow for direct communication, can be particularly effective in circumventing and bypassing bureaucratic processes, as an example given by a participant demonstrates: "when working with the government, the use of email is required, but I can increase my rentability, and my efficiency increases substantially, if I use Facebook Messenger or LinkedIn. And I can give you a concrete example (…) we were organizing an annual conference (…) and we wanted to invite the Secretary of State for (omitted)… and I was in contact with the services for a long time and nothing happened. Eventually I sent a message

directly to the Secretary of State through Facebook Messenger and I got an immediate response (…) she immediately said yes and that she was available to attend the event".

Prompted by actors

It is important to note that the participants in this focus group seldom use digital technologies to contact actors external to the initiative; for this purpose they privilege face-to-face contact. In this process, there are positive and negative experiences. Flexibility, which is indicated as a positive aspect, is outnumbered by the negative aspects underlined by the participants: bureaucracy, cultural traits, and lack of professionalism.

Similarly to the first focus group, participants stress the same three aspects. Bureaucracy is a large source of dissatisfaction, leading participants to find alternative ways of circumventing it, if they are to achieve their goals in due time. Another source of discomfort relates to cultural traits, often considered as lack of professionalism. Examples of these include being late for a meeting or exchanging an excessive number of Emails to resolve an otherwise simple issue.

As a positive aspect, larger-sized CTII mention the flexibility that civil parishes and some municipalities also allow to accommodate their specific needs. This flexibility, a category that was only found in this focus group, is observed not only in terms of processes but also in terms of contact hours. Some participants reported being able to phone some of these actors outside working hours, through their personal phone numbers.

Prompted by contextual aspects

Similarly to small-sized CTII, this type of initiatives reports on the lack resources to appropriately run all their activities. To conveniently articulate with the various actors demands substantial effort and dedication. The lack of human, financial, and material resources is experienced as frustrating, because some tasks are either not completed at all or not done to the desired level of quality. One example that participants refer relates to social network sites. Social network sites need to be fuelled, and time and resources are scarce to nourish these sites. Participants also alluded to the fact that some ideas and projects, however promising, may never be fully developed, again due to the lack of resources.

CHARTING AND DISCUSSION OF RESULTS

The research presented in this chapter aims to shed light on how community-led initiatives are overcoming challenges and leveraging incentives to innovate and act upon the territories and society they integrate. In developing their activities, both small- and larger sized CTII are part of a larger contextual ecosystem, where they make use of digital technologies and interact with other relevant actors.

Into what concerns to the types of experience prompted by technology, it is possible to observe that the negative aspects far extend the positive in both focus groups. Among the negative aspects, participants of the focus group conducted with the small-sized CTII highlight the excess of unsorted information and the excess of digital tools they have to deal with on a daily basis. To these aspects, participants of the focus group conducted with the larger-sized CTII add the impersonal nature of the type of communication digital tools support. Into what concerns positive aspects small-sized CTII emphasise the valuable contribution of digital tools to reach out their audiences and make note of how the simplicity digital tools is key in enabling people with few technology skills to easily develop communication and dissemination materials. With regards to the context of use of digital tools by small-sized CTII, it is possible to observe that these are equally used to interact with members of the initiative and with actors external to the initiative. Conversely, larger-sized CTII largely use technologies to articulate among members of the initiative.

Into what concerns to the types of experience triggered by the interaction with actors external to the initiatives, small-sized CTII elicit a large number of sources of frustration, namely related to: cultural traits, technology illiteracy, bureaucracy, and lack of professionalism. As positive aspects, small-sized CTII

highlight the know how of actors, namely the know how of people working in civil parishes, and the support that municipalities provide once a given initiative is under their radar.

Finally, regarding negative contextual aspects, larger-sized CTII solely mention the lack of resources (e.g.: financial). To those, small-sized CTII add the lack of information about events and activities. There are also positive contextual aspects and these are, from the perspective of small-sized CTII, effectiveness and organized and complete promotional materials.

Overall, small-sized CTII need closer interaction with local citizens and organizations and thus resort to a diversity of digital tools to achieve that purpose. Larger-sized CTII, above all, value the trust that is built over face-to-face interaction and maintaining this type of relationships is key. Although they recognise the importance of digital technologies, these are perceived as a complement to the relationships that are experienced in the physical space.

The emphasis placed on the relationships that develop face-to-face arguably is key in supporting both communities and the panoply of actors they interact with to conduct their activities. The advantage of the information that is transmitted face-to-face consists in the fact that this information has already been tested for relevance and was personalized for the recipient, which reduces information overload (Bathelt et al. 2004). According to Storper & Venables (2004), the effect of a great deal of face-to-face contact is an important force to contribute to the "buzz" of territory. Buzz allows people inside and outside the networks to know what is happening, generating information circulation and attracting "capable" individuals to the territory.

Thus, on the one hand, local buzz is "beneficial to innovation processes because it creates opportunities for a variety of spontaneous and unforeseen situations" (Bathelt et al. 2004, p.17). On the other hand, the construction of global communication channels - called pipelines - allows the integration of environments that open different potentialities and feed local interpretation and the use of external knowledge (Bathelt et al. 2004).

According to Morgan (1997), acting on a territory involves a complex process that results from an intentional collective action promoted by a set of agents and organizations (companies, universities, research centres, local government bodies, associations, and non-governmental organizations - NGOs), which interact to stimulate innovation. In this way, personal communication is the glue that unites actors with different roles in a diversity of areas of activity. This relates to the concept of governance through participation (Tardif & Harrison, 2005) that involves organizations, communities, and territories acting together as one to better their territory and society. Thus, in the process of territory-based innovation, actors may belong to different identities and cultural contexts and seek to achieve different benefits, while still preserving their autonomy. In this sense, the intensity of stakeholder participation depends on their ability to integrate and overcome differences by “modifying the state of their relationships through mechanisms of collective learning, negotiation, collaboration, cooperation, commitment and reciprocity in action” (Tardif and Harrison. 2005, p. 48-49).

The challenge of strengthening community-based initiatives to gain control over their development largely depends on the ability of community leaders to build social networks by engaging residents and mobilizing external and internal resources for local activities (Brown & Nylander, 2009; Marré & Weber, 2010). These networks allow different groups of people and organizations to work collectively towards a common goal, organizing strategies and sharing resources (La Due Lake & Huckfeldt, 1998).

The research reported in this chapter reveals that CTII face issues that range from the overabundance of digital tools and content to technology illiteracy by those active in the territory. To this add issues related to bureaucracy and lack of support from actors external to CTIIs and the lack of resources and organization weaknesses. Other authors (Kwan, Frankish, Quantz & Flores, 2003) researching on community capacity in the field of tourism found similar barriers that they organize in barriers at the individual, organizational, and community level. Similarly to the results of the study reported in this chapter, Kwan, Frankish, Quantz

& Flores (2003) stress: i) individual barriers that include lack of skill and knowledge and lack of sense of community among individuals; ii) organization barriers that relate to the absence or deficiency in terms of organization, external support, and resource mobilization; and iii) community barriers that include lack of local community participation, structure, and power decision-making.

A recent study carried out in Portugal also showed the existence of several barriers that hinder community initiatives, such as anachronistic or inadequate legislation, institutional bureaucracy, unclear or inaccessible funding processes, cultural factors (Marques Balsa et al. 2016). The same study highlights constraints, such as: the lack of support to initiatives from government institutions; the mismatch between the knowledge of the technical staff who work in the field and the political decisions of their hierarchical superiors; the lack of continuity of implemented measures; the insufficient and / or inadequate human resources to respond to the challenges of the initiative; budgetary constraints; the poor culture of citizen participation; the economic difficulties and lack of strategic planning; the conditions of participation and the capacity for expansion of the initiative" (CATALISE, 2016, p.157).

Into what concerns to the use of technology it is important that political development keeps pace with technological development, so that the lack of digital connectivity, technological equipment and digital skills does not restrict rural communities' ability to grow economically, socially, and culturally (Roberts, Beel, Philip & Townsend, 2017). However, providing technology and connectivity alone is not enough to promote digital inclusion and the effective use of digital technologies. For a community to rightly achieve digital inclusion and effective use depends on the level of digital skills and technological readiness of their members and their willingness to embrace and use those technologies (Lucas & Moreira, 2016; Parasuraman & Colby, 2015).

The study reported in this chapter found that technology is associated with both negative and positive experiences where tools that are simple and ease to master are preferred to complex ones. While internally CTII seem to be able to circumvent the challenges inherent to the use and mastery of digital tools, the same proactive behaviour seems to be lacking among the technical staff with whom CTII interact outside of the community initiative. Technology illiteracy and the perception that other actors still hold out-of-date skills, reveals the needs for capacity building also among actors external to the initiative. This need for training is supported by other studies, that stress that it is necessary to promote training on digital technologies that fit the daily activities of local communities and enable people to cope with rapid digital change (Bougie, 2002; Hage et al., 2013; Almeida, 2016).

FUTURE RESEARCH DIRECTIONS

Based on the data collected and analysed, it was possible to inform and identify the functional requirements that a digital tool, to promote community-led territorial Innovation initiatives, should have. These requirements have laid the foundations for a digital platform that is currently under development. Such a solution will contribute to the promotion of ties between different agents (e.g. citizen, community, network and regulatory boards) and initiatives.

CONCLUSION

The research reported in this chapter aimed to shed light into the barriers and incentives that CTII face while conducting their activities. In achieving that goal, this chapter was developed based on previous literature and on the results of two focus groups conducted with small- and larger-sized CTII.

The findings indicate that focus groups' participants find themselves in a scenario that is characterized by an excess of digital tools and unsorted information. To this challenging situation, larger-sized CTII underline that mediated communication is impersonal and that the expectations announced by digital tools are often unmet. Further undesirable experiences manifest when interacting with other actors, where resources misuse and cultural traits, as well as technology illiteracy, bureaucracy, out-of-date skills, and lack of professionalism taint their experiences while developing their actions. Financial constraints and

weaknesses in terms of resources and information about events present further challenges to the normal course of CTII action in the field.

There are however aspects contributing to the efficient development of activities by CTII. To this contribute the efficiency and efficacy of digital tools in reaching audiences and members within the initiative. CTII also acknowledge the valuable know how of technical staff in local governmental bodies and the support and flexibility these local actors provide to CTII. However less important, organized and complete promotional materials and effectiveness are also perceived as facilitators.

The development of a territory unfolds from a process that is both bottom-up and top-bottom and that results from a delicate balancing act of the intelligent articulation of various contributions that can be found in a territory. The involvement and proximity between the different actors in the territory are crucial for the creation and dissemination of knowledge, that while rooted in practical experience is dependent on the socio-territorial contexts. In this sense, an appropriate strategy for the development of a territory needs to involve the local community in the identification and development of unique elements that could prompt the distinctive competitive advantages of that region.

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REFERENCES

Almeida, A. M. P. (2016). Design Inclusivo. In F. Providência, A. Sousa, & C. Pereira (Eds.), Ergotrip *Design 2015 – Textos dos palestrantes*. (pp. 44–62). Createspace Independent Publishing Platform. Retrieved from https://www.createspace.com/6498758.

Amorim, M. (2015). Empreendedorismo e Inovação Social. In Teles, F. (coord). *Oportunidades para a Inovação Social e Empreendedorismo na Região de Aveiro - Um Território com Identidade*. Universidade de Aveiro. Retrieved from http://www.iera.pt/wp-content/uploads/2015/07/OIScatalogoFINALpara-divulgacao-2.pdf

ANACOM (2017). O *Sector das Comunicações* 2016. Retrieved from https://www.anacom.pt/-render.jsp?contentId=1409782

ANACOM (2019). *Balanço social 2018*. Retrieved from https://www.anacom.pt/render.jsp?contentId-=1472091

Antunes, H. M. (2017). (Eco) turismo e Lazer no Desenvolvimento dos Territórios Rurais. O caso dos percursos pedestres no concelho de Góis: proposta de valorização. (Master's thesis, ESAC). Retrieved from https://comum.rcaap.pt/bitstream/10400.26/20797/1/Helena%20Margarida%20Antunes%2021528003.pdf

Aref, F. (2011). Barriers to community capacity building for tourism development in communities in Shiraz, Iran. Journal of Sustainable Tourism,19(3), 347–359. Retrieved from https://doi.org/10.1080/09669582.2010.517314

Bathelt, H., Malmberg, A., & Maskell, P. (2004). Clusters and knowledge: local buzz, global pipelines and the process of knowledge creation. *Progress in Human Geography, 28*(1), 31–56. https://doi.org/10.1191/0309132504ph469oa

Bonomi, S., Ricciardi, F., & Rossignoli, C. (2017). Network organisations for externality challenges: how social entrepreneurship co-evolves with ICT-enabled solutions. *International Journal of Knowledge-Based Development, 8*(4), 346-366

Bougie, T. (2002). *The impact of new technologies on the quality of life of people with disabilities*. Strasbourg Cedex: Council of Europe Publishing.

Brown, R., & Nylander, A. (2009). Community Leadership Structure: Differences Between Rural Community Leaders' and Residents' Informational Networks. *Journal of the Community Development Society, 29*, 71-89.

CCDRC (2014). *RIS3 do Centro de Portugal – Estratégia de Investigação e Inovação para uma Especialização Inteligente*. Retrieved from https://www.portugal2020.pt/sites/default/files/erei_centro-_1.pdf

Creswell, J. W., & Clark, V. L. P. (2010). *Designing and Conducting Mixed Methods Research* (Second edition). Los Angeles: SAGE Publications, Inc.

Ebbesen, L. S., Heath, S., Naylor, P. J., & Anderson, D. (2004). Issues in measuring health promotion capacity in Canada: a multi-province perspective. *Health Promotion International, 19*(1), 85-94. https://doi.org/10.1093/heapro/dag408

Encalada, L., Boavida-Portugal, I., Cardoso Ferreira, C., & Rocha, J. (2017). Identifying tourist places of interest based on digital imprints: Towards a sustainable smart city. *Sustainability, 9*(12), 2317.

Etuk, L., Rahe, M., Crandall, M., Sektnan, M., & Bowman, S. (2013). Rural leadership development: pathways to community change. *Community Development, 44*(4), 411-425, DOI: 10.1080/15575330.2012.761639

Eurostat (2017). European ICT survey: "Information and Communication Technologies inhouseholds and by individuals". Retrieved from http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=prc_hicp_midx&lang=en.

Fahey, R., Vasconcelos, A. C., & Ellis, D. (2007). The impact of rewards within communities of practice: a study of the SAP online global community. *Knowledge Management Research & Practice, 5*(3), 186-198.

Ferreira, L. A. (2016). Governança territorial, inovação e turismo sustentável: uma análise comparativa das redes Casas Brancas e Aldeias de Xisto. (Master's thesis, FEUC).

Ferreras, V. H. A. (2010). Factores críticos de éxito y evaluación de la competitividad de los destinos turísticos. *Estudios y perspectivas en turismo, 19*(2), 201-220.

Gomes, A. R. (2016). O turismo rural e o desenvolvimento da região centro (Doctoral dissertation, University of Algarve). Retrieved from https://sapientia.ualg.pt/handle/10400.1/8057

Hage, E., Roo, J. P., van Offenbeek, M. A., & Boonstra, A. (2013). Implementation factors and their effect on e-Health service adoption in rural communities: a systematic literature review. *BMC health services research, 13*(1), 19.

Henriques, J. M. (2013). On becoming healthier communities: Poverty, territorial development and planning. *Revista Portuguesa de Saúde Pública, 31*(1), 58-73.

Kwan, B., Frankish, J., Quantz, D., & Flores, J. (2003). *A synthesis paper on the conceptualization and measurement of community capacity*. Institute of Health Promotion Research, University of British Columbia.

La Due Lake, R., & Huckfeldt, R. (1998). Social capital, social networks, and political participation. *Political Psychology, 19*(3), 567-584.

Lucas, M. & Moreira, A. (2016). *DIGCOMP–Proposta de um quadro de referência europeu para o desenvolvimento e compreensão da competência digital*. UA Editora.

Malek, A. & Costa, C. (2014). Integrating Communities into Tourism Planning Through Social Innovation. *Tourism Planning & Development, 12*(3), 281-299, DOI: 10.1080/21568316.2014.951125.

Marques Balsa, C., Albuquerque, C., Avelar, D., Penha Lopes, G., Nolasco, M., Santos, P., & Rocha, S., (2016). *Experimentação Socioecológica: Novos caminhos para a participação no desenvolvimento local sustentável e integral*. Relatório Científico do Projeto de Investigação CATALISE, Lisbon (2016). Retrieved from http://www.redeconvergir.net/public/catalise-relatorio-cientifico.pdf

Marré, A. W., & Weber, B. A. (2010). Assessing community capacity and social capital in rural America: lessons from two rural observatories. *Community Development, 41*(1), 92-107.

Martin-Barbero, J. (1987). *De los medios a las mediaciones - comunicación.* Cultura y hegemonía. Barcelona: Gustavo Gilli.

McGinty, S. (2003). *The literature and theories behind community capacity building. Sharing Success: an Indigenous perspective.* VIC, Australia: Common Ground Publishing, 65-93.

Morgan, K. (1997). The learning region: institutions, innovation and regional renewal. *Regional Studies, 31*(5), 491-503.

Mulgan, G. (2006). The process of social innovation. *Innovations: technology, governance, globalization, 1*(2), 145-162. Retrieved from https://www.mitpressjournals.org/doi/pdf/-10.1162/itgg.2006.1.2.145

Parasuraman, A. & Colby, C. (2015). An updated and streamlined technology readiness index: TRI 2.0. *Journal of service research,18*(1), 59-74.

Pikkemaat, B., Peters, M., & Chan, C. S. (2018). Needs, drivers and barriers of innovation: The case of an alpine community-model destination. *Tourism management perspectives, 25*, 53-63.

Reis, P. (2012). Desenvolvimento local em áreas rurais de baixa densidade: uma proposta de intervenção para as aldeias históricas de Portugal de Trancoso e Marialva. In *Prociding III Seminário de I&DT*, Instituto Politécnico de Portalegre. Retrieved from http://hdl.handle.net/10400.26/4073

Roberts, E., Beel, D., Philip, L., & Townsend, L. (2017). Rural resilience in a digital society. *Journal of Rural Studies, 54*, 355-359.

Saint-Onge, H., & Wallace, D. (2012). *Leveraging communities of practice for strategic advantage*. Routledge.

Sampaio, C. A. C., Alves, F. K., & Falk, V. C. V. (2008). Arranjo socioprodutivo de base comunitária: interconectando o turismo comunitário com redes de comércio justo. *Turismo Visão e Ação, 10*(2), 244-262.

Scolari, C. (2008). *Hipermediaciones – Elementos para una teoria de la comunicación digital interactiva*. Barcelona: Gedisa.

Scolari, C. (2015). From (new)media to (hyper)mediations. Recovering Jesús Martín-Barbero's mediation theory in the age of digital communication and cultural convergence. *Information, Communication & Society*, *18*(9), 1092–1107. https://doi.org/10.1080/1369118X.2015.1018299

Seyfang, G. & Smith, A. (2007). Grassroots innovations for sustainable development: Towards a new research and policy agenda. *Environmental Politics, 16*(4), 584–603. Retrieved from https://doi.org/10.1080/09644010701419121

Silva, P. A., Tymoshchuk, O., Renó, D., Almeida, A. M., Pedro, L., & Ramos, F. (2018, May). Unravelling the Role of ICT in Regional Innovation Networks: A Case Study of the Music Festival 'Bons Sons'. In *Conference on Smart Learning Ecosystems and Regional Development* (pp. 47-61). Springer, Cham.

Snyder, W. M., & Wenger, E. (2010). Our world as a learning system: A communities-of-practice approach. In *Social learning systems and communities of practice* (pp. 107-124). Springer, London.

Storper, M. & Venables, A. J. (2004). Buzz: face-to-face contact and the urban economy. *Journal of Economic Geography, 4*(4), 351–370. https://doi.org/10.1093/jnlecg/lbh027

Tardif, C., & Harrisson, D. (2005). *Complémentarité, convergence et transversalité: la conceptualisation de l'innovation sociale au CRISES* (No. 513). Crises. Retrieved from https://depot.erudit.org/bitstream/001601dd/1/ET0513.pdf

Tymoshchuk, O., Renó, D., Silva, P. A., Almeida, A. M., Pedro, L., & Ramos, F. (2019). O papel das tecnologias digitais no desenvolvimento das comunidades rurais: o estudo de caso múltiplo de "BioLiving" e "Bons Sons". *Revista Portuguesa de Estudos Regionais (RPER), 3*(52), 131-144.

Wallace, C., Vincent, K., Luguzan, C., Townsend, L., & Beel, D. (2017). Information technology and social cohesion: A tale of two villages. *Journal of Rural Studies, 54*, 426–434. Retrieved from https://doi.org/10.1016/j.jrurstud.2016.06.005

Wenger, E. (1998). Communities of practice: Learning as a social system. *Systems thinker, 9*(5), 2-3.

Zambanini, M. E., Bresciani, L. P., Palmisano, A., Ettinger, T., & dos Santos, I. C. (2016). Inovação e desenvolvimento territorial: uma análise sobre São José dos Campos. *Ensaios FEE, 37*(2), 489-520. Retrieved from https://revistas.fee.tche.br/index.php/ensaios/article/view/3123

Zeng, J., Li, F., He, X., & Wen, J. (2019). Fused Collaborative Filtering With User Preference, Geographical and Social Influence for Point of Interest Recommendation. International Journal of Web Services Research (IJWSR), 16(4), 40-52.

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[1] http://center.web.ua.pt/?page_id=9381&lang=en
[2]WebQDA is an online Qualitative Data Analysis software, available at https://www.webqda.net/
[3]The initial categories were: mediation and communication tools, purpose of use, agents to reach out to, context of use, type of experience prompted by technology use, and wishes concerning the attributes and features of a technological solution to support their activities.
[4]Propinquity explains that one is prone to develop ties with those who are geographically close and is a good indicator for the formation or discontinuation of communities. (Wallace, Vincent, Luguzan, Townsend, & Beel, 2017).

ADDITIONAL READING

Bonomi, S., Ricciardi, F., & Rossignoli, C. (2017). Network organisations for externality challenges: How social entrepreneurship co-evolves with ICT-enabled solutions. *International Journal of Knowledge-Based Development, 8*(4), 346-366.

Pohjola, I., & Puusa, A. (2016). Group dynamics and the role of ICT in the life cycle analysis of community of practice-based product development: a case study. *Journal of Knowledge Management, 20*(3), 465-483.

Ramos, F., Pedro, L., Almeida, M., & Silva, P. (2019). Exploring the learning and training dimension of a digital platform for territory-based innovation. In L. Gómez Chova, A. López Martínez, I. Candel Torres (Eds.), *EDULEARN19 Proceedings – 11th International Conference on Education and New Learning Technologies*, Mallorca (pp. 9654-9658). doi: 10.21125/edulearn. 2019

Seyfang, G., & Smith, A. (2007). Grassroots innovations for sustainable development: Towards a new research and policy agenda. *Environmental politics, 16*(4), 584-603.

Silva, P. A., Antunes, M. J., Tymoshchuk, O., Pedro, L., Almeida, M., Renó, D., Ramos, F. (2019, no prelo) Involving communities in shaping digital solutions for innovation in societies and territories. In *Conference proceedings ICGI'2019 – International Conference on Graphics and Interaction.*

Silva, P. A., Tymoshchuk, O., Renó, D., Almeida, A. M., Pedro, L., & Ramos, F. (2018). Unravelling the Role of ICT in Regional Innovation Networks: A Case Study of the Music Festival 'Bons Sons.' In H. Knoche et al. (Ed.), *SLERD 2018, SIST 95* (Springer I, pp. 47–61). Springer International Publishing AG, part of Springer Nature. http://doi.org/10.1007/978-3-319-92022-1_5

Silva, P.A. & Daniel, A.D. (2019). Training Non-Designers in Co-Design Methods through an Active Assisted Living Interactive Workshop. In *Conference proceedings Interact 2019.* DOI: 10.1007 / 978-3-030-29384-0_10

Thapa, D., & Sæbø, Ø. (2016). Participation in ICT Development Interventions: Who and How? *The Electronic Journal of Information Systems in Developing Countries, 75*(1), 1-10.

KEY TERMS AND DEFINITIONS

Community-led Territorial Innovation: Recognizes the central role of collective actors – engaged in multiple interactions with different entities – in the creation of public value resulting from territorial resources.

Community: The group of people who share affinities and, voluntarily, develop joint actions, in a physical and/or virtual environment, in the context of a territory and produce, repurpose and share information relevant to the development of that territory.

Digital mediation: A form of computer mediated communication (Castells, 2007).

Hypermediation: A complex network of production, exchange and consumption of processes that take place in an environment characterized by countless social actors-agents, digital media and technological languages (Scolari, 2015).

Network of collaboration: Formed from direct or indirect relationships of entities or individuals who share resources in order to achieve compatible common goals.

Social Innovation: The innovative activities and services that aim at meeting a social need and that usually arise from individual participant actors with a very specific skillset, which cannot be transferred through top-down approaches, but rather the opposite, regardless of its intended external stimulation (Mulgan, 2006).

Territorial Innovation: The interactive process of social and/or economic value creation based on – existing or nurtured – located (and/or external) resources.